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PROFESSIONAL EXPERIENCE

Chief Energy Technologist (2011-pres) Lawrence Livermore Natl. Lab, Livermore, CA

Coordinate and manage the energy research program across LLNL

Serve as primary business, governmental, and media interface on energy issues.

Lead a successful \$150M effort in smart grid technology development and deployment with CA utilities

Helping lead new programs in shale gas, industrial partnerships, and advanced computing for energy

Director, Carbon Management Program (2003 – pres) LLNL, Livermore, CA

Built a >\$15 million dollar research program in 5 years.

Engaged LLNL in five commercial CCS projects (Weyburn, In Salah, Snohvit, Shenhua, Cranfield)

Managed research staff of >40 investigators

Technical Leader, US-China Clean Energy Research Center (CERC) for Coal and CCUS

Assistant Research Scientist (2001-2004) University of Maryland, College Park

Sr. Research Geol. (1998-2000) ExxonMobil Upstream Research Co., Houston

Research Geologist (1996-1998) Exxon Production Research Co., Houston

Research Experience:

Energy systems analysis

Smart grid design and application for planning and operations

Carbon Capture, Utilization, and Sequestration (CCUS)

Fossil energy conversion, including polygeneration, gasification and liquefaction

Shale gas technology development and practice

Chinese energy systems, conversion, and networks, with an emphasis on fossil energy and electric transmission

Exploration/Production Experience: Venezuela Heavy Oil Belt, Nigeria (Deepwater), Gulf of Mexico, North Sea (U.K. & Norway), Congo Basin, Angola/S.Angola (Deepwater)

Other relevant experience:

Co-founder Global CCUS conference series, Shanghai and Beijing

EDUCATION

Ph.D. **Univ. of Southern California** (1995)

Dissertation: *Shadow Valley basin, eastern Mojave Desert, California: Structural and stratigraphic evolution of a supradetachment basin & its implications for extensional tectonics*

M.S. **Massachusetts Institute of Technology** (1990)

B.S. **Massachusetts Institute of Technology** (1988)

FELLOWSHIPS, HONORS, SERVICE (subset)

National Coal Council (*advisory board to U.S. Sect. of Energy*), May 2012
Programmatic Advisory Committee, RPSEA, unconventional gas, 2007-2008
DOE Office of Science, Basic research needs, geoscience, author of technical document, 2006/7
Natl. Petroleum Council, “Facing Hard Truths”, CO₂ working group technology chair, 2006/7
Congressional testimony, House committee on Energy and Commerce Committee, March 2007
Contributing Author, “The Future of Coal Energy”, MIT Study, 2007
Invited Speaker: “The future (and promised) of fracking technology” USEA, Washington DC 2012
Keynote Speaker: Hydraulic Fracturing: A Wyoming Forum, Laramie, WY, Sept. 2011
Invited Speaker: Babcock & Wilcox Executive Forum: Clean Energy Systems, Sept. 2010
Invited speaker: China Energy and Environmental Summit, Beijing, Dec. 2008, 2009, 2010
Invited Speaker, Shell Subsurface Technology Conference, Den Haag, Netherlands, Nov. 2007
Invited Speaker, Xerox PARC forum, Palo Alto, CA, April 2007
Keynote Speaker, Gordon Research Conference, Future of Hydrocarbon research, Jan. 2007
Invited Speaker, Aspen Center for Physics, Energy Forum, July 2006
Invited Speaker, MIT Center for Energy & Environmental Policy Research, May 2006
Invited Speaker, Harvard/Kennedy School Advanced Coal Technologies, Sept. 2005
Invited Speaker, Tyndall Center, Cambridge Univ., January 2004, Cambridge, UK
Dean’s award for excellence in teaching (honorable mention), Univ. Maryland, 2003

BOARDS, COMMERCIAL TECHNICAL ADVISORY

Member, National Coal Council (advisory group to Sect. of Energy) 2012-pres.
Co-director, US-China Clean Energy Research Center, Advanced Coal Technology Consortium
Executive Committee, National Risk Analysis Program (DOE-NETL) (2008-2013)
Chair of Carbon Management Advisory Board, Summit Power, Texas Clean Energy Project
Technical Advisory Board, GreatPoint Energy, Inc.
Technical Advisory Board, EmberClear, LLC
Advisory Board, American Electric Power, Mountaineer Project Geological Expert Team, 2010
Advisory Board, World Resource Institute, WRI Guidelines for CCS in China, 2009
Technical Advisory Board, Carnegie Mellon Univ., CO₂REGS project, 2008-present
Technical Advisory Member, FutureGen Technical Experts Group, 2006-2007

PROFESSIONAL COLLABORATORS (Partial list)

D. Rotman, J. Long, R. Aines, N. Kaahaaaina, T. Antoun, P. Dempsey, R. Burleson, J. Grosh, S. Bohlen, A. Ramirez, AJ Simon, C. Smith, S. Carroll, T. Diaz De La Rubia, D. Crawford, P. Albright (Director), *Lawrence Livermore National Laboratory, Livermore CA*
A. Cugini (Director), G. Guthrie, S. Plasynski, *National Energy Technology Lab, Pittsburgh PA*
Scott Tinker (Director), Ian Duncan, Susan Hovorka, *Bureau of Economic Geology, Austin, TX*
Eric Redman, *President of Summit Power, Seattle, WA*
Albert Lin, *President of EmberClear, Inc, San Francisco, CA*
James F. Wood, *Former Dep. Asst. Sect., DOE Office of Fossil Energy, Washington, DC.*
Dennis Bracy, *President of US-China Clean Energy Forum, Seattle, WA*
Sarah Forbes, Deborah Seligsohn, *World Resources Institute, Washington DC*
David Hawkins, George Peridas, *Natural Resource Defense, Council Washington DC*
Armond Cohen, Joe Chaisson, Kurt Walter, Mike Fowler, Ming Sung, *Clean Air Task Force*
Jonathan Pershing, *State Department and Dept. of Energy, Washington DC*
Robin Newmark, *National Renewable Energy Lab, Golden CO*
Ernest Moniz, John Deutch, Howard Herzog, *MIT, Cambridge MA*
David Keith, *Univ. Calgary and Harvard Univ., Cambridge, MA and Calgary, Canada*
Mark Northam, *Director, School of Energy Research, Univ. Wyoming, Laramie, WY*
John Poate, Dag Nummedal, *Colorado Energy Research Inst., Colorado Sch. of Mines, Golden, CO*

PUBLICATIONS

Friedmann, SJ and Cohen, A, 2013, Shale Gas will Change the US, not the Climate, *Financial Times*, Jan. 10th, 2013

Jones D, McVey T, **Friedmann** SJ, 2012, Location-Specific Technoeconomic evaluation of a Novel Amine Technology, *Energy Procedia*, Elsevier, 8 p.

Friedmann, SJ, 2012, Shaping California's Smart Grid: Employing the best computer technology, *EnergyBiz Magazine*, Jan/Feb, <http://www.energybiz.com/magazine/article/251061/shaping-california-s-smart-grid>

Buscheck TA, Sun Y, Chen M, Hao Y, Wolery T, Bourcier W, Court B, Celia MA, **Friedmann** SJ, Aines RD, 2012, Active CO₂ reservoir management for carbon storage: Analysis of operational strategies to relieve pressure buildup and improve injectivity, *Intl. J. of Greenhouse Gas Control* v.6

Chiaromonte L, Zoback MA, **Friedmann** SJ, Stamp V, 2012, 3D Stochastic Reservoir Model and Fluid Flow Simulation of the Fractured Tensleep Formation for a CO₂-EOR Pilot, *SPE Conf. on Carbon Management Tech*, CMTC-151480

Friedmann SJ, 2011, Carbon Capture and Green Technology: Environmentalism's Step Forward and Two Steps Back, *Foreign Affairs* (Online), <http://www.foreignaffairs.com/articles/68256/s-julio-friedmann/carbon-capture-and-green-technology>

Five solicited postings for the Atlantic Monthly: James Fallows sabbatical replacement:

Why we need a quadrennial energy review:

<http://www.theatlantic.com/technology/archive/2011/04/why-we-need-a-quadrennial-energy-review/73371/>

Saving the planet – just like cleaning our room: April 2, 2011:

<http://www.theatlantic.com/technology/archive/2011/04/saving-the-planet-just-like-cleaning-our-room/73369/>

A way to think about converting energy units: April 1, 2011:

<http://www.theatlantic.com/technology/archive/2011/04/a-way-to-think-about-converting-units-of-measurement/73324/>

Green China Rising: March 31, 2011

<http://www.theatlantic.com/technology/archive/2011/03/green-china-rising/73263/>

Why it's hard to talk about energy: March 29, 2011.

<http://www.theatlantic.com/technology/archive/2011/03/why-its-hard-to-talk-about-energy/73147/>

Simon AJ, Kaahaaina NB, **Friedmann** SJ, Aines RD, 2010, Systems analysis and cost estimates for large-scale capture of carbon dioxide from air, *Energy Procedia*,

Cugini A, DePaolo D, Fox M, **Friedmann** SJ, Guthrie G, Virden J, 2010, US-DOE's National Risk Assessment Program: Bridging the gaps to provide the science base to ensure successful CO₂ storage, *Energy Procedia*,

Buscheck TA, Sun Y, Hao Y, Aines RD, Wolery TJ, Thompson AFB, Jones ED, **Friedmann** SJ, 2010, Combining brine extraction, desalination, and residual-brine injection with CO₂ storage in saline formations: implications for pressure management, capacity, and risk management, *Energy Procedia*,

Morris JP, Detwiler RL, **Friedmann** SJ, Vorobiev OY, Hao Y, 2010 The large-scale effects of multiple CO₂ injection sites on caprock and formation stability, *Intl. J. of Greenhouse Gas Control*,

- Esposito RA, Monroe LS, **Friedmann SJ**, 2010, Deployment Models for Commercialized Carbon Capture and Storage, *Environmental Science and Technology*, v.44
- Newmark, RA, **Friedmann, SJ**, Carroll, SJ, 2010, Water Challenges for Carbon Capture and Sequestration, *Environmental Management*, DOI 10.1007/s00267-010-9434-1.
- Asia Society, 2009, Roadmap for US-China Collaboration on Carbon Capture and Sequestration, Asia Society Press, 41p. http://asiasociety.org/files/pdf/AS_CCS_TaskForceReport.pdf
- Friedmann, SJ** 2009, Accelerating Development of Underground Coal Gasification: Priorities and Challenges for U.S. Research and Development, *in*, Coal Without Carbon, Clean Air Task Force, www.coaltransition.org, pp 1-16.
- Friedmann, SJ** and Newmark, RA, 2009, Commercial Deployment of Geologic Carbon Sequestration: Technical Components of an Accelerated U.S. Program, *in*, Coal Without Carbon, Clean Air Task Force, www.coaltransition.org, pp 59-76.
- Friedmann, SJ** 2009, Emerging Technical Challenges of 5-Million ton/year CO₂ injection, SPE Technical Proceedings, SPE-126942-MS, 2009 SPE International Conference on CO₂ Capture, Storage, & Utilization, San Diego, CA
- Foxall W, **Friedmann SJ**, 2008. Frequently Asked Questions about Carbon Sequestration and Earthquakes, Lawrence Livermore National Laboratory Report LLNL-BR-408445, https://eed.llnl.gov/co2/pdf/Seismicity_FAQs_final4.pdf
- Friedmann SJ**, Updahye R, Kong, F-M, 2008, Prospects for UCG in a carbon constrained, energy secure world, International Energy Agency's Greenhouse Gas Control Technology Conference no. 9, Washington, DC, Nov. 2008
- Friedmann SJ**, 2008, Practice, Protocols, and Performance-based Standards for Carbon Sequestration Projects, International Energy Agency's Greenhouse Gas Control Technology Conference no. 9, Washington, DC, Nov. 2008
- Forbes SM, Curray T, **Friedmann SJ**, Verma P, Wade S, 2008, Guidelines for Carbon Capture and Sequestration, major contributing author, World Resources Institute, Washington DC, 103 p.
- Aines RD, Leach MJ, Weisgraber TH, Simpson MD **Friedmann SJ**, Bruton CJ, 2008 Quantifying the potential exposure hazard due to energetic releases of CO₂ from failed sequestration wells, 9th Greenhouse Gas Technology Conference, Washington, DC
- Morris JP, Detwiler RL, **Friedmann SJ**, Vorobiev OY, Hao Y, 2008 The large-scale effects of multiple CO₂ injection sites on caprock and formation stability, 9th Greenhouse Gas Technology Conference, Washington, DC
- Forbes SM, Verma P, **Friedmann SJ**, Curry TE, Wade SM, Venezia J, 2008, WRI CCS Guidelines and Emerging Geologic Sequestration Regulations: A Comparative Assessment International Energy Agency's Greenhouse Gas Control Technology Conference no. 9, Washington, DC, Nov. 2008
- Morris JP, Johnson SM, **Friedmann SJ**, 2008, Geomechanical Simulations of Caprock Integrity using the Livermore Distinct Element Method, 7th Annual NETL conference on Carbon Capture and Sequestration, Pittsburgh, PA ExchangeMonitor
- Ramirez A, **Friedmann SJ**, 2008, Joint reconstruction of CO₂ plumes using disparate data, 7th Annual NETL conference on Carbon Capture and Sequestration, Pittsburgh, PA ExchangeMonitor
- Burton, E, **Friedmann, SJ**, Upadhye, R, 2006, Best Practices in Underground Coal Gasification (draft), Lawrence Livermore National Laboratory Report UCRL-TR-225331-DRAFT, 119 p.

- Edmonds JA, Dooley JJ, Kim SK, **Friedmann SJ**, Wise MA, 2007, Technology in an integrated assessment model: the potential regional deployment of carbon capture and storage in the context of global CO₂ stabilization, *in*, Kheshgi H. et al. (eds) *Human induced climate change: an interdisciplinary assessment*, Cambridge Univ. Press, Cambridge, pp 181-197.
- Friedmann, S.J.**, 2007, Testimony for the Senate Commerce Committee, Science, Technology and Innovation Sub-committee Hearing: “Technical feasibility of rapid deployment of geological carbon sequestration”, Nov. 16, 2007
- MIT, Future of Coal in a Carbon Constrained World, MIT Press, 2007, 190 p.
- Friedmann, S.J.**, 2007, Testimony for the House Energy and Commerce Committee, Energy and Air Quality Sub-committee Hearing: “Carbon Capture and Sequestration: An Overview”, March 6, 2007
- Friedmann, SJ**, 2007, Geological Carbon Dioxide Sequestration, *Elements*, v.3, 179-184
- Wilson EJ, **Friedmann SJ**, Pollak MF, 2007, Research for Deployment: Incorporating Risk, Regulation and Liability for Carbon Capture and Sequestration, *Environment and Science Policy*, v.41, 5945-5952
- Gee, MJR, Gawthorpe, RL, Bakke, K, **Friedmann, SJ**, 2007, Seismic Geomorphology and evolution of submarine channels from the Angolan Continental Margin, *J. Sedimentary Research*,
- Chiaromonte, L., Zoback, M., **Friedmann, SJ**, Stamp, V., 2007, Seal integrity and feasibility of CO₂ sequestration in the Teapot Dome EOR pilot: geomechanical site characterization, *Environmental Geoscience*, v.53
- Friedmann, SJ** 2007, Operational protocols for geologic carbon storage: Facility life-cycle and the new hazard characterization approach, 6th Annual NETL conference on Carbon Capture and Sequestration, Pittsburgh, PA ExchangeMonitor, Oral 034
- Burton, E., **Friedmann, SJ**, Wagoner J, 2007, Application of Site Assessment Methodology for Geologic Storage of CO₂: A Case Study of the Southern San Joaquin Valley, California, 6th Annual NETL conference on Carbon Capture and Sequestration, Pittsburgh, PA ExchangeMonitor, Poster
- Friedmann, S.J.**, 2006, Testimony for the CA Assembly Legislature Utilities and Commerce Committee, Lawrence Livermore National Laboratory Report, UCRL-TR-220473, 7 p.
- Friedmann, S.J.**, 2006, “Big Iron” Linux clusters driving step changes in interpretation, simulation, American Oil and Gas Reporter, v49, p. 80-84
- Friedmann, S.J.** and Stamp, V., 2006, Teapot Dome: Site Characterization of a CO₂- Enhanced Oil Recovery and Storage Research Site in Eastern Wyoming, *Environmental Geoscience* v.13, 181-200
- Friedmann, S.J.**, 2006, Defining an End State for CO₂ Sequestration and EOR in North America, 8th Greenhouse Gas Technology Conference, Trondheim, Norway, session I3-3
- Porter, M. L., A. R. G. Sprague, M. D. Sullivan, D. C. Jennette, R. T. Beaubouef, T. R. Garfield, C. Rossen, D. K. Sickafoose, G. N. Jensen, S. J. **Friedmann**, and D. C. Mohrig, 2006, Stratigraphic organization and predictability of mixed coarse- and fine-grained lithofacies successions in a lower Miocene deep-water slope-channel system, Angola Block 15, *in* P. M. Harris and L. J. Weber, eds., Giant hydrocarbon reservoirs of the world: From Rocks to reservoir characterization and modeling: AAPG Memoir 88/SEPM Special Publication, p. 281–305.
- Ramirez, A, **Friedmann, S.J.**, Foxall, W.A., Kirkendall, B., Dyer, K., 2006, Subsurface imaging of CO₂ plumes using multiple data types and Bayesian inference, 8th Greenhouse Gas Technology Conference, Trondheim, Norway, Poster session II

- Bogen, K., Burton, E., **Friedmann**, S.J., and Gouveia, F., 2006, Source terms for CO₂ risk modeling and GIS/simulation based tools for risk characterization, 8th Greenhouse Gas Technology Conference, Trondjheim, Norway, session E1-3
- Friedmann**, S.J., 2006, The scientific case for large CO₂ storage projects worldwide: Where they should go, what they should look like, and how much they should cost, 8th Greenhouse Gas Technology Conference, Trondjheim, Norway, Poster session II
- Ide, S.T., **Friedmann**, S.J., and Herzog, H.J., 2006, CO₂ Leakage Through Existing Wells: Current Technology and Regulatory Basis, 8th Greenhouse Gas Technology Conference, Trondjheim, Norway, Poster session II
- Friedmann**, S.J. 2006, The ICE framework for CO₂ storage site characterization, NETL 5th Annual Conference on Carbon Sequestration, Alexandria, VA, ExchangeMonitor Publications
- Ramirez, A., **Friedmann**, S.J., Foxall, W.A., Kirkendall, B., Dyer, K., 2006, Subsurface imaging of CO₂ plumes using multiple data types and Bayesian inference, NETL 5th Annual Conference on Carbon Sequestration, Alexandria, VA, ExchangeMonitor Publications
- Blinderman, M.S., and **Friedmann**, S.J., 2006, Underground Coal Gasification with Carbon Capture and Storage: A Pathway to a Low-Cost, Low-Carbon Gas for Power Generation and Chemical Syntheses, NETL 5th Annual Conference on Carbon Sequestration, Alexandria, VA, ExchangeMonitor Publications
- Wilson, E.R., and **Friedmann**, S.J., 2006, Squaring the Long View: Regulatory and geological considerations for establishing future research agendas for Carbon Capture and Sequestration, NETL 5th Annual Conference on Carbon Sequestration, Alexandria, VA, ExchangeMonitor Publications
- Chiaromonte, L., Zoback, M., **Friedmann**, S., Stamp, V., 2006, CO₂ Sequestration, Fault Stability and Seal Integrity at Teapot Dome, Wyoming, NETL 5th Annual Conference on Carbon Sequestration, Alexandria, VA, ExchangeMonitor Publications
- Friedmann**, S.J., Dooley, J.J., Held, H., Edenhofer, O., 2006, The low cost of geological assessment for underground CO₂ storage: Policy and economic implications, Energy Conversion Management, v.47, pp 1894-1901
- Friedmann**, S.J., (in press), Thinking big: the importance of large-scale projects in advancing geological carbon sequestration science and technology, J. Energy Research
- Friedmann**, S.J, 2005, Underground Coal Gasification in the USA and Abroad, Congressional hearing on climate change, November 14 in the Senate Foreign Relations Committee
- Davis, G.A., and **Friedmann**, S.J., 2005, Large-scale gravity sliding in the Miocene Shadow Valley Supradetachment Basin, Eastern Mojave Desert, California, Earth Science Reviews
- Gouveia, F.J., M. Johnson, R.N. Leif, S.J. **Friedmann**, 2005: Aerometric measurement and modeling of the mass of CO₂ emissions from Crystal Geyser, Utah; NETL 4th Annual CO₂ sequestration conference, Alexandria
- Homer-Dixon, T., and **Friedmann**, S.J., 2005, Coal in a Nice Shade of Green, New York Times, Op-ed piece, March 25
- Gee, MJ, Gawthorpe, RL, **Friedmann**, SJ, 2005, Giant striations at the base of a submarine landslide, Marine Geology, v. 214, 287-295
- Friedmann**, S.J., and Homer-Dixon, T., 2004, Out of the Energy Box, Foreign Affairs, v.83, #6

- Friedmann, S.J.** 2004, Rapid Qualitative Risk Assessment for Contaminant Leakage From Coal Seams During Underground Coal Gasification and CO₂ Injection, Lawrence Livermore National Lab, Report UCRL-TR-205194
- Friedmann, S.J.**, Nummedal, D, Stamp, VR, 2004, Science and technology goals of the Teapot Dome field experimental facility, NETL 3rd Annual Carbon Sequestration Conference Proceedings, Alexandria, VA, Exchange Monitor Publications
- Friedmann, S.J.**, McCutcheon, Nummedal, D, Milliken, M, Stamp, VR, Klusman, R, 2004, Goals and configuration of an induced leakage experiment at Teapot Dome, WY, NETL 3rd Annual Carbon Sequestration Conference Proceedings, Alexandria, VA, Exchange Monitor Publications
- Brennan, ST, Hughes AV, **Friedmann, SJ**, Burruss, RC, 2004, Natural Gas Reservoirs with high CO₂ concentrations as Natural Analogs for CO₂ Storage, Conf. Proceedings, GHGT-7, IEA Greenhouse Gas Programme, Vancouver
- Dooley, JJ, Kim, SK, Edmond, JA, **Friedmann, SJ**, Wise, MA, 2004, A first order global geologic CO₂ storage potential supply curve and its application in a global integrated assessment model, Conf. Proceedings, GHGT-7, IEA Greenhouse Gas Programme, Vancouver
- Dooley, JJ, and **Friedmann, S.J.**, A regionally disaggregated global accounting of CO₂ storage capacity: data and assumptions, Pacific Northwest National Laboratory, Report PNWD-3431
- Friedmann, S.J.**, and Nummedal, D., 2003, Reassessing the geological risks of seals failure for saline aquifers and EOR projects, 2nd Annual Carbon Sequestration Conference, DOE/NETL, Alexandria, VA
- Nummedal, D., **Friedmann, S.J.**, and Stamp, V., 2003, Geological Sequestration in Wyoming – Filling up the “Big Empty”, 2nd Annual Carbon Sequestration Conference, DOE/NETL, Alexandria, VA
- Friedmann, S.J.**, Losert, W., and Kwon, G., 2003, Granular memory and its effect on the triggering and distribution of rock-avalanche events, J. Geophys. Res. v.108, 2380
- Friedmann, S.J.**, 2003, Storing Carbon in Earth, Geotimes, March 2003, p17-20
- Friedmann, S.J.**, and Raynolds, R.A., 2003, Magnetostratigraphic age constraints on terrestrial fauna, Porcupine Cave site, central Colorado, *in* Barnosky, A. (ed.) Biodiversity response to environmental change in the middle Pleistocene: The Porcupine Cave fauna from Colorado. University of California Press, Berkeley.
- Friedmann, S.J.**, 2000, Recent advances in deep-water sedimentology and stratigraphy using conventional and high-resolution 3D seismic data, GeoCanada 2000 Annual Meeting, Canada, 4 p. extended abstract with figures
- Beaubouef, R.T., and **Friedmann, S.J.**, 2000, High Resolution Seismic / Sequence Stratigraphic Framework for the Evolution of Pleistocene Intra Slope Basins, Western Gulf of Mexico: Depositional Models and Reservoir Analogs, *in* Weimer, P (ed.), Deep-water Reservoirs of the World, Gulf Coast Section SEPM, Conference proceedings and abstracts, Houston.
- Pirmez, Carlos, Beaubouef, R.T., and **Friedmann, S.J.**, 2000, Equilibrium Profile and Baselevel in Submarine Channels: Examples from Late Pleistocene Systems and Implications for the Architecture of Deep Water Reservoirs, *in* Weimer, P (ed.), Deep-water Reservoirs of the World, Gulf Coast Section SEPM, Conference proceedings and abstracts, Houston.
- Friedmann, S.J.**, 1999, Sedimentology and stratigraphy of the Shadow Valley basin, eastern Mojave, Desert, California, *in* Wright, L.A. (ed.), Cenozoic Basins of the Death Valley Region, GSA Special Paper 333, p. 214-243

- Friedmann, S.J.**, 1997, Rock avalanches of the Miocene Shadow Valley basin, eastern Mojave Desert, California: Processes and Problems, *J. Sedimentary Research*, v. 67a, 792-804
- Friedmann, S.J.**, Davis, G.A., and Fowler, T.K., 1996, Geometry, paleodrainage, and geologic rates from the Shadow Valley supradetachment basin, eastern Mojave, California *in* Beratan, K.K. (ed.), *Reconstructing the Structural History of Basin and Range Extension Using Sedimentology and Stratigraphy*, G.S.A. Special Paper 303, p.85-105.
- Friedmann, S.J.**, 1996, Remnant Miocene strata below the Shadow Valley basin, eastern Mojave Desert, California, *San Bernardino County Museum Quarterly*, 123-126
- Friedmann, S.J.**, 1995, The Shadow Valley basin, eastern Mojave Desert, California: The structural and stratigraphic evolution of a supradetachment basin, and its implications for extensional tectonics, Ph.D. Thesis, University of Southern California, 452 p.
- Friedmann, S.J.** and Burbank, 1995, Rift and Supradetachment basins: Intracontinental extensional endmembers, *Basin Research*, v. 7, p. 109-127
- Fowler, T.K., **Friedmann, S.J.**, Davis, G.A., and Bishop, K., 1995, Two-phase evolution of the Shadow Valley basin, southeastern California: a record of footwall uplift during extensional detachment faulting, *Basin Research*, v. 7
- Friedmann, S.J.**, Davis, G.A., Fowler, T.K., Brudos, T., Burbank, D.W., and Burchfiel, B.C., 1994, Stratigraphy and gravity-glide elements of a Miocene Supradetachment basin, Shadow Valley, Eastern Mojave desert. *in* Ross T. (ed.) *Field Trip Guide Book*, G.S.A. Cordilleran Section, San Bernardino, p. 312-328
- Friedmann, S.J.**, and Grotzinger, J.P., 1994, Sedimentology, stratigraphy, and tectonic implications of a Paleoproterozoic extensional basin: The El Sherana and Edith River groups, Northern Australia, *Canadian Jour. of Earth Science*, v. 31, No. 4
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- Friedmann, S.J.**, and Grotzinger, J.P., 1991, Sedimentology, stratigraphy and history of the 1.86 Ga El Sherana and Edith River groups, Pine Creek Orogen, N.T., Australia. B.M.R. report, Bureau of Mineral Resources, Canberra, A.C.T., Australia, 130 p.

PUBLICATIONS (INTERNAL INDUSTRY)

- Friedmann, S.J.**, in review, Late Pleistocene shelf and slope deposits from block 211, W. Nigeria: Implications for sedimentary process, reservoir architecture, and sequence stratigraphy; West Africa Collaborative Project, EPR Geoscience Report
- Friedmann, S.J.**, and Bellian, J., 1998, Comparative Sedimentology of Coarse Grained Rift Facies, EPR Geoscience Research Report, EPR.26EX.98
- Friedmann, S.J.**, and Fowler, T.K., 1997, Report on the Findings of an Informal Colloquium on Tectonics, Structure, and Sedimentation, EPR Geoscience Research Memo, EPR.75EX.97
- Friedmann, S.J.**, and Feldman, H.R., (eds.), 1997, Core Description Atlas: Fluvial and Nonmarine Settings, EPR Geoscience Research Report, EPR.76EX.97

Spague, A.R., and **Friedmann**, S.J., 1997, Sequence Stratigraphy and Facies Distribution in the Orinoco Heavy Oil Belt, Eastern Venezuela, EPR Research Application Report.